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AUTHOR Kerstiens, Gene
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ABSTRACT

Students enrolled in six developmental reading classes offered during a 16-week semester or a 6-week summer session at El Camino College (California) were pre-tested with the California Phonics Survey (form 1) to determine their phonic abilities. Students enrolled in eight concurrent developmental writing classes were similarly tested. Those from both groups showing phonic disabilities were utilized as experimental (n=106) and control (n=113) groups to test whether the "typical" community college developmental reading course, which does not pay special attention to phonic skills, is effective in remediating such deficiencies. Post-tests with form 2 of the instrument showed that both groups made small but significant gains, with the experimental group achieving only slightly higher gains. Sex, instructional time of day (day/evening), and duration of course (semester/summer session) were not significant influences, but pre-test scores were highly predictive of course withdrawal. It was concluded that students completing a typical developmental reading course do not receive treatment that significantly reduces their phonic disabilities and that students who are grossly disabled are not likely to survive such a course. (LH)

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The Effect of a Typical Community College
Developmental Reading Course on the
Phonic Disablement of Students

(Gene Kerstiens

A MAJOR APPLIED RESEARCH PROJECT
PRESENTED TO NOVA UNIVERSITY IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

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ABSTRACT

A research review indicated that, while the typical community college developmental reading course does not pay special attention to students with phonic disabilities, many students enrolled in such courses are phonically disabled. Therefore, a study was executed to learn whether this typical developmental treatment effectively diminishes students' phonic disabilities.

The California Phonics Survey, Forms 1 and 2, was the primary measuring instrument used in this study. Students enrolled in and completing a developmental reading course and whose pre-test scores indicated phonic disablement (Experimental Group: N=106) were post-tested to learn that their mean gains were significant at the .05 level. Students completing a developmental writing course (Control Group: N=113) were measured similarly to learn that their mean gains were also significant at the .05 level. When the mean gains of these groups were compared, the superior gain enjoyed by the Experimental Group was not significant. Additional data were analyzed to learn that (1) sex, instructional time of day, and duration of course are not factors that influence students' decrease in phonic disabilities; (2) students' degree of phonic disablement is not predictive of success (grade) in a developmental reading course; and (3) students' entry-level (pre-test) scores on the California Phonics Survey are highly predictive of dropout

(.01 level of confidence).

Principal conclusions were that students completing a developmental reading course do not receive treatment that significantly reduces their phonic disabilities and that students who are grossly disabled are not likely to survive the course.

Recommendations based upon this study's findings included (1) the establishment of intensive short-term courses to effectively train developmental reading instructors to teach aural decoding skills; (2) the institution and study of experimental courses designed to specifically treat students' phonic disabilities; (3) the initiation and study of experimental mini-courses and/or individualized, self-instructional formats designed to teach students phonic skills while students are concurrently enrolled in a developmental reading course; and (4) the initiation of a pilot program designed to learn whether students enrolled in reading development classes can receive effective training in phonic analysis within the context of the course itself.

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G.K.

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CHAPTER 1

INTRODUCTION

Purpose of the Study

Although instruction in phonics on the elementary level is currently employed with great frequency in many school systems and while research at this level is patently voluminous, there is every indication that most community college reading classes are designed with an emphasis on the development of comprehension, vocabulary, study skills, and reading rate and in a real sense ignore phonics instruction.

The act of reading necessarily depends on word recognition. Since the apprehension of written language is usually linked to the reader's ability to actually decode words, this decoding process is facilitated by knowledge and/or employment of phonic techniques. However, many students engaging in the college experience are measured as phonically disabled. Therefore, it is incumbent upon those responsible for community college reading programs to learn whether their clients are receiving treatment that effectively improves students' reading abilities.

Therefore, a study was executed to determine whether typically available developmental reading treatment benefits community college

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students who have phonic disabilities. Would the phonic disabilities of students enrolled in such classes decrease?

Significance and Background of the Study

The significance of this study is contingent upon four circumstances and conditions that proceed from a review of research on phonics as it relates to college developmental reading programs. First, that the typical and traditional college-level reading program has generally ignored phonics instruction is apparent. Second, a review of the history of phonics instruction in the United States indicates that, at all levels, until recently phonics instruction has not been characteristically or necessarily emphasized and that teachers are poorly prepared to deliver such treatment. Third, the importance of word recognition, especially in its aural aspect and as a condition prerequisite to reading comprehension, is emphasized in the research on the subject--or issue. Finally, that many community college students exhibit various degrees of phonic disablement that is related to their inability to comprehend the curricular related reading material presented them is borne out by the research specifically addressed to this condition.

The Typical Community College Reading Course

A review of regional and national surveys, appraisals, and research reviews reinforces the position that during a forty-six year period college-level developmental reading programs have not changed their objectives, emphases, or strategies in matters or areas that can

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be regarded as essential. In support of these observations, Schreiner and Tanner (1976) have concluded that the terminology, materials, and assessment techniques associated with reading programs have appeared to change more rapidly than methodologies. In fact, an early, extensive and well controlled study (Eurich 1931) of a program designed to improve college students' proficiency in vocabulary/knowledge, paragraph reading, reading efficiency, reading rate, and study skills describes strategies together with measuring instruments that are interestingly similar to those reported through the years.

Nine regional surveys of four-year college and community college reading programs (Zerga 1940, Miklas 1954, Andrews 1955, Colvin 1961 and 1963, Geerlofs 1966, Colvin 1967, Geerlofs and Kling 1968, and Charles 1970) indicate that such treatments employ instructional methods calculated to improve vocabulary, comprehension, study skills, and reading rate. However, these studies do not mention phonics treatment as part of any program or as an alternative to a program.

Investigating the status of college reading programs on a national scope, five surveys (Leedy 1958, Dare 1971, Sweiger 1972, Huslin 1975, and Smith, Enright and Devirian 1975) report findings that are similar to those reported in regional surveys. These national surveys also fail to report the specific implementation of phonics instruction as part of any program.

Six research reviews dealing respectively with the skills, innovative techniques, strategies, typical practices, approaches, and the developmental history of college reading/study skills programs

(Dintleman 1971, Kerstiens 1971a and 1971b, Croy 1973, Anderson 1975, Wright 1975) confirm the results of the surveys previously cited.

Finally, three appraisals of model or exemplary reading programs (Witty 1966, Spache and Others 1959, Darnes 1971) fail to mention phonics treatment as integral or as adjunct to these programs but do include directions for enlightened emulation of the typical treatments reported in previously cited surveys and research reviews.

The literature does reveal two papers (Brown 1970, Oakman 1970) describing reading programs dealing specifically and entirely with the treatment of phonically disabled students and incorporating a phonic methodology in the treatment of reading disabilities. These courses, however, are not represented as following the typical developmental pattern; rather, authors have admitted--and championed--the egregiousness of their approaches.

Therefore, the review of literature indicates that the typical college developmental reading program or course has emphasized and continues to utilize certain strategies and methods calculated to improve vocabulary, reading comprehension, reading rate, and study skills that tend to characterize these programs, which apparently are inclined to exclude or at least minimize instruction in phonics.

Phonics Instruction and Preparation of Reading Instructors

A review of the literature and research indicates that historically there has been much controversy centered around the teaching of phonics, especially in the primary grades. Therefore, there has been

a tendency to discard phonic instruction and then reintroduce it, often in some other form or with other emphases, at another time (Emans 1968, Gans 1964, Groff 1976, Miller 1973, Rupley 1974, Smith and Dechant 1961, Spache 1976). Additionally, the research indicates that reading instructors are currently unprepared to teach phonics effectively (Cleland 1966; Emans 1968, 1969, 1970, 1971, 1973; Mazurkiewicz 1975a, 1975b, 1976; Schnell 1974; Smith and Dechant 1961).

Groff (1976) traces the teaching of letter-sound correspondence as the primary means of introductory reading instruction back to 1614, and there is general agreement that such condition was prevalent until the end of the 19th Century (Emans 1968, Gans 1964, Groff 1976, Rupley 1974, Schreiner and Tanner 1976). However, by the end of the century the vogue of Gestalt psychology, the studies of Cattell, and the pronouncements of Horace Mann had cast doubt upon the emphasis of teaching aural and oral decoding. And during the period of 1900-1940 the work of Dewey, Kilpatrick, Watson and other champions of Progressive Education was persuasive enough to severely limit if not almost eliminate phonics in public school education and to replace it with the whole-word, look-say, and/or global method(s) (Emans 1968, Gans 1964, Groff 1976, Mazurkiewicz 1976, Schreiner and Tanner 1976). But beginning dramatically with Flesch's (1955) popularized work, phonics instruction in the United States staged a comeback so that, by the time of Chall's (1967) well documented and widely accepted pronouncement in favor of the inclusion of phonics instruction in the primary reading curriculum, educators were quickly reintroducing phonics into

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the typical instructional pattern as one of the strategies employed (Groff 1976, Miller 1973, Schreiner and Tanner 1976, Spache 1976). Miller (1973), having reviewed the current status of reading instruction, concluded that most reading experts and the preponderance of research indicate that "some attention must be given to letters, sounds and syllables, but the question is how much." (p. 41) And finally Smith (1973) summarized the state-of-the-art pattern in reading instruction in this way: "Fortunately in recent years teachers have recognized that no single clue or decoding strategy is sufficient by itself and therefore teachers have tried to provide children with a choice of clues." (p. 148)

For the purposes of this study, the most important conclusion to be drawn from the brief review of the history of reading instruction in the United States does not involve the controversy over or the currents of opinion or popularity surrounding phonics. Rather, the significant finding to be emphasized is the fact that today's community college student is not likely to have been exposed to adequate or effective instruction in decoding techniques in the lower grades and that this educational condition may (1) be responsible for his measured phonic disablement and may (2) be sufficient reason for considering, at the college level, incorporating phonics as an instructional strategy calculated to improve his reading performance.

Related to the research concerning the relative paucity of phonics instruction in elementary education until recent years are the observations and research of writers who have studied the matter of teacher competency in the area of phonics instruction.

In an early pronouncement, Smith and Dechant (1961) stated that teachers singularly employing the look-say or whole word method were "dull," inexperienced, and generally unprepared (p. 196). Cleland (1966) likewise mentions surveys showing that teachers are poorly prepared to teach by the phonic method. Emans (1968) also cites current studies indicating that teachers tend to be severely deficient in their ability to infuse phonics skills and that they themselves have little understanding of phonic principles (pp. 606-607). The continuing--and seemingly unrelenting--research conducted by Ilika corroborates earlier studies. Ilika (1968) studied 198 teacher education students to learn that they did not generally comprehend phonic principles and that the phonic generalizations they did understand were those that are least useful to students. He noted that "learning phonics and word attack skills involves more time and reality-related methods courses than those provided on the teacher education level." (p. 49) Comparing elementary teacher majors with other undergraduate students and as measured on the California Phonics Survey, Ilika found that elementary majors, although superior to other undergraduates, were wanting in phonics skills (Ilika 1969). Again, comparing elementary teachers (N=78) with other college populations (N=293), Ilika (1970) found no significant difference between the phonic knowledge of these groups. However, two later studies did indicate that teachers could experience growth in word analysis skills in specially designed methods courses (Ilika 1971) and that workbook/tape programmed instruction modules can be used to improve teacher competencies in word attack skills (Ilika 1973). Rayborn's (1975) research

complemented Ilika's (1971) study, concluding that teacher training courses can help teachers acquire needed vocabulary and word attack skills. Again, Mazurkiewicz's (1975a) research lead to his finding that "teachers have an inadequate knowledge of terms used in reading and a low level of ability to apply them with words typically found in reading materials." (p. 176) Later Mazurkiewicz (1975b) at least partially attributed teacher unpreparedness to research indicating that college professors who teach teachers of reading do not agree on terminology, definitions, and the generalizations that should be used in phonic analysis and that such condition (Mazurkiewicz 1976) has occasioned long-term errors in instruction. In a survey of 300 community college reading instructors, Schnell (1975) revealed that eighty percent of them felt they should receive training in those clinical and diagnostic procedures that prepare instructors to deal with reading disabilities that would include phonic disablement. Finally, administering the Cooperative English Reading Test to 348 teachers of reading and comparing their scores with college freshman norms, Gentile and McMillan (1977) learned the following:

96 teachers (28 percent) scored lower in vocabulary than did one-half of the freshman population who served as a basis for establishing the test's norms.

171 teachers (49 percent) did less well in comprehension than did half of the first-year students.

195 teachers (56 percent) read slower and with less understanding. (p. 146)

Given, then, the findings of researchers investigating the history of reading instruction in American education and the preparation and competency of teachers engaged in that activity, there is adequate reason to assume that community college students who are deficient in

word recognition and aural decoding skills may experience this deficiency because of their early exposure to ineffective instruction.

Phonics at the College/Adult Level

A review of the research involving college/adult populations with respect to aural reading skills and phonics instruction reveals only two studies that do not support the position that aural decoding skills are related to reading proficiency. Wells (1950), studying eighty-four college freshmen in the lower academic quarter of their class, found no significant correlation between subjects' oral reading errors and their silent reading and vocabulary. In a modest study (N=4), Lahey, Weller, and Brown (1973) found that phonics instruction provided functionally illiterate male adults was not an effective strategy.

Yet, there is more evidence that a college student's ability to phonically (or aurally) decode writing is related to his ability to comprehend written material and that the improvement of his reading skills (and perhaps success in college courses) will be hampered if not precluded until or unless his phonic disablement is diminished or eradicated.

For instance, as early as 1937, Rogers concluded that mispronunciation of words and lack of comprehension are highly correlated and that "at the college level phonics training is an effective technique for the improvement of pronunciation, oral reading, and reading vocabulary." (Rogers, 1937, p. 19) In her extensive study involving 400 college students and comparing phonetic competency with students'

measurement on six reading instrument scales, Cottrell concluded that "students' ability in phonetic analysis is necessary but not sufficient for reading in the English Language." (Cottrell 1958, p. 32) And this conclusion was further given credence by Brown and Cottrell (1963) in which they compared junior college students' scores on the California Phonics Survey with selected measures on various tests including reading comprehension scales. In 1966, one of Courtney's findings was that increase in college students' oral reading efficiency parallels although it may not be directly attributable to their increase in silent reading comprehension (Courtney 1966, pp. 50-51). Somewhat, incidentally, but nonetheless interestingly, Young (1967) learned that low ability males who score higher on the California Phonics Survey enjoy greater success in an introductory psychology class than their even lower scoring peers. In an experiment employing phonic techniques on an adult population (ages eighteen to sixty-five), Beam (1972) found that subjects averaged one year's grade-level gain for every forty hours of instruction and concluded that "the phonic technique in teaching reading to illiterate adults is more effective than any other present method." (p. 334) Later, Farrell provided evidence that until the "non traditional" junior college student is able to "interiorize" what he reads in terms of aural images the student will not comprehend the passages he is attacking (Farrell 1974, p. 249). The six previous studies cited were based upon data that were treated objectively. However, four other appraisals of phonic ability at the college level, these not research oriented, suggest that the phonic disabilities of students enrolled in developmental reading classes may decrease

(Magee 1969; Brown 1970; Oakman 1970; and Mounger 1972).

This review of research, then, gives rise to a question: if ability in decoding skills is related or prerequisite to effective reading or academic success at the college level, does the typical community college developmental reading course repair students' phonic disabilities to a significant degree?

Littrell (1976) attacked this problem directly. Studying an experimental group (students with measured phonic disablement who had completed a developmental reading course (N=43)) and a control group (students with measured phonic disablement who had completed a developmental writing course (N=15)), he compared their pre and post test scores on the California Phonics Survey. Employing the analysis of covariance statistical technique, he learned that phonic disabilities were decreased significantly (.05 level) in the experimental group. However, Littrell's samples were (1) comparatively small and (2) limited to a Midwestern community college population. The question naturally arises as to whether his results and conclusions are generalizable and whether replication of his study with larger samples involving classes taught by a variety of instructors would provide similar or conflicting results.

Since the visual-perceptive process of reading relies upon the reader's passive vocabulary and since it is apparently accepted that the reader's capacity to decode language determines his apprehension and comprehension of word meaning (Brown and Cottrell 1963; Magee 1969; Mounger 1972), and since the measured phonic abilities of many community college students are deficient (Brown and Cottrell 1963),

community college reading practitioners need to reassess their programs with constructive dissatisfaction and with the knowledge that a replicative study may provide.

Definitions of Terms

Aurality--inner speech.

Auding--pertains to listening or listening skills; "the process of hearing, listening to, recognizing and interpreting spoken language." (Carver 1973, p. 77)

Grapheme-phoneme Correspondences--the degree to which the pronunciation of a word can be effected through the application of phonic generalities to its spelling.

Orality--speech that is articulated.

Phonetics--a term convertible with the term phonics.

Phonic Ability--the ability to decode linear communication to render an oral or aural image that represents word meaning.

Phonically Disabled Student--a student who scores below 70 (seventy) on Form 1 of the California Phonics Survey.

Phonics--phonic analysis; synthetic method; method of teaching reading and pronunciation based upon the phonetic interpretation of ordinary spelling.

Reading Disability--"A specific learning disorder occurring despite normal or better intelligence and regular schooling." (Klasen 1972, p. 173)

Typical College Developmental English Course--a course designed to treat students' writing problems through study of and drill in

grammar and usage and by writing short essays (usually paragraph length), revising essays that are corrected or edited by an instructor or reader.

Typical College Developmental Reading Course--a course designed with emphasis on the development of comprehension, vocabulary, study skills, and reading rate and to the exclusion of any specific instruction in phonics.

Limitations of the Study

The population of the present study was delimited to a single campus: a large, Western, community college. Subjects were selected from a total of fourteen classes conducted by nine different instructors during one regular semester and one six-week summer session. Additionally, classes comprising both the experimental and control groups were those conducted by instructors who (1) were willing to have their classes studied, (2) were teaching during periods that would afford instructional time variables that could be compared, and (3) were employing instructional strategies such that their courses conformed to the definition of "typical college developmental reading course" or "typical college developmental English course."

CHAPTER 2

REVIEW OF RELATED RESEARCH

Word Recognition: Concurrence and Disputation

That written English is an alphabetic language and that words and letters symbolize speech sounds that represent meaning is, of course, undisputed. Nor are there differences of opinion concerning the position that English is phonologically a relatively imperfect language inasmuch as it presents many irregularities. There are differences in opinion concerning the degree of irregularity, these being attributable to writers' interpretations of the term phonic regularity (phonic generalizations) and the differences in word samples studied (Cottrell 1958; Moore 1951; Spache 1976). But the position that our language would present no major problem relating to reading if there were a one-to-one correspondence between its written and spoken forms--if phonetic ambiguities were eliminated--is a generally if not universally accepted axiom.

Therefore, there is general concurrence that word recognition is the basis for reading and that "...reading does involve translating printed symbols into auditory memories of spoken words." (Spache 1976, p. 218) There are admitted exceptions, such as in the case of the deaf and persons suffering from acute auditory agnosia (lack of auditory discrimination), who can learn to read but through unusual

learning modalities and typically with considerable difficulty. However, the importance of aural imagery in the reading process is emphasized in the literature and is perhaps best summarized as follows:

The phonetic relationship is the special one that exists only in alphabetic writing between the auditory and visual skills--namely, the fact that the combinations of letters seen represent sounds, which, in turn, symbolize meaning. (Cottrell 1958, p. 20)

But, while reading specialists and researchers apparently reach agreement concerning the primacy of decoding the visual display into an auditory display in the act of reading, they do not reach concurrence concerning the relative effectiveness of the various strategies, techniques, and methodologies employed to facilitate word recognition or word attack skills. In the professional literature on the subject, two principal and generic methods of teaching word attack skills have been identified, defended, and attacked; namely, the analytic method and the synthetic method.

Analytic Method

The analytic method emphasizes teaching the student to observe the whole word rather than its phonically identifiable parts. In its earliest form, the analytic method is identified as the "whole word," "look-say," and/or "global" method. Students are encouraged to look at the letter configuration of an unfamiliar word, to pronounce it, to recognize it as a familiar word in their aural vocabulary, and then to memorize the visual symbol together with its aural image. The analytic method also makes use of contextual clues so that the student might anticipate the meaning if not the pronunciation of an unfamiliar

word. Thus, Stratton and Nackle (1974) note, "Utilization of immediate verbal context allows the reader to predict the meanings of unfamiliar words." (p. 190) Again, the student is taught common prefixes, roots, and suffixes to help him identify these word parts and thus obtain clues to the meaning of unfamiliar words, such techniques being called "structural analysis." Thus, the analytic method does not emphasize letter-sound correspondence in its methodology and is seen as an alternative to the synthetic method. (Spache 1976, pp. 221-228). And many reading specialists consider the analytic method as optimal, so that only when a student's global reaction to a word fails is he directed to a synthetic method. (Smith and Dechant 1961; Stratton and Nackle 1974).

Synthetic Method

The synthetic method draws the student's attention to the letters, sounds, and syllables of words, and the term synthetic method is convertible with the term phonic analysis. The student is taught to identify certain letters and letter combinations that (1) occur frequently enough and (2) are pronounced consistently enough to constitute a phonic generalization that can be applied with reasonable assurance to unfamiliar words. Thus, the student is taught to "sound-out" an unfamiliar word, the pronunciation or aural recognition of which can be matched with the word stored in his aural lexicon. One writer, and an early one, has summarized the position of many writers favoring the inclusion of phonic training as an important aspect of word recognition methodology:

The value of phonics in pronunciation in contrast to more sight training lies in the fact that the student is given a tool which will enable him to attack new and unfamiliar words while sight training would improve only the particular words studied. (Rogers 1937, p.18) (Also see Barr 1974-75; Glass and Burton 1973; Groff 1976; Hislop and King 1973; Rubenstein, Spafford, and Rubenstein 1971; Walcutt 1974)

Word Recognition Skills Methodology: The State of the Art

As indicated in the previous chapter of this study, the synthetic method of teaching word recognition skills did not enjoy much popularity or become effectually implemented until the late 1960's, and then it was applied principally in elementary reading programs. However, during the last ten years both the synthetic and analytic approaches have been employed in the primary grades, and this eclecticism has been supported and fostered by the preponderance of research on the subject. Concluding his review of research, Emans (1968) stated that all contemporary research-oriented writers agree that the combined approach to word recognition skills is advisable (p. 606). Lamb (1975) underscores Emans' conclusion: "Learning word recognition skills, including phonics, is an absolute necessity for learning to read. ...The optimum amount of phonics instruction for every child is the minimum he needs to become an independent reader." (p. 16)

It should be noted that writers do not view the teaching of phonic techniques as the teaching of reading per se. Rather, phonic analysis is construed as a specific but fundamental tool allowing students to continue to experience growth in reading because they are not constrained by a set of reading words and are allowed to draw more readily upon their natural language (Barr 1974-75; Groff 1974; Hislop and King

1973; Miller 1973; Smith 1973; Smith and Dechant 1961; Stott 1969; Walcutt 1974).

Reading and the Nontraditional College Student

That more and more students who can be classified as disabled readers are currently attempting to engage in the community college experience and that these students lack necessary reading and study skills is a condition that so proliferates the literature as to be considered common knowledge. Even the popular press has paid considerable attention to these students' attrition rates, low grades, and over-all lack of competency in those basic reading skills required by the curriculum. These reports, surveys, research projects, and "disclosures" often--and perhaps conveniently and deservedly--focus on students' reading performance as measured by standardized testing instruments. For the purposes of this study, however, the reported research on the topic will be limited to those observations and studies that relate directly to students' word recognition and aural decoding skills deficiencies that affect their learning--and more specifically their reading.

Aural/Oral Aspects of Instruction

Because competency in listening and speaking skills usually precedes skills in reading, it has been noticed that many community college and other adult students, although highly competent in oral/aural skills, have not been able to develop the more demanding skills required by reading (Farrell 1974 and 1977; Feldman 1967; Loban 1968; Stott 1969). Loban (1968) has suggested the underlying nature of the

problem: "The most crucial of all linguistic concepts is simply stated: the living language is the spoken language." (p. 1) Observing highly oral students, Farrell (1974) noticed that

in reading they vocalize words, because for them words are essentially sounds, not merely visual symbols. Frequently they rely on graphophonic cues to derive meaning to the extent that they are not utilizing semantic and syntactic cues as well as good readers do in order to get meaning from the printed page. (p. 249)

And other writers (Edfeldt 1960; Feldman 1976; McGuigan, Keller, and Stanton 1964; Stott 1969) agree that a disabled reader will fall back upon his speaking knowledge of language, especially when the reading is challenging. Therefore, "As the reader becomes more skilled, he relies less and less on the sound-symbol code." (Stott 1969, p. 853)

Finding many of these college/adult students apparently lodged at the aural/oral developmental stage, five researchers have studied the effects of oral reading and auding with a view to increasing word recognition skills and reading comprehension. Wells (1950) studied eighty-four freshmen in the lower academic quarter of their class to learn that there was no significant correlation between oral reading errors and silent reading comprehension and vocabulary. Cheris and Austin (1963) noted that a course in silent reading had a positive effect (.05 level) on the speed and accuracy of oral reading of college students. Later, Courtney (1966) learned that increase in college students' oral reading efficiency parallels although it may not be directly attributable to their increase in silent reading comprehension. A four-year study (N=167) of college freshmen whose reading instruction was complemented by instruction in auding (Lewis 1964) revealed

that the treatment did not significantly affect students' reading or listening abilities. Finally, Rao (1972) employed auding strategies on disadvantaged freshman students using a simultaneous aural/visual technique, concluding that this treatment is more effective in improving reading comprehension and vocabulary than the visual method.

Therefore, scanty research involving oral reading and auding strategies as these affect the college student appears to be inconclusive and to provide no clear direction for practitioners who would employ these methodologies.

Spelling

To the extent that spelling involves the encoding of speech sounds into a graphemic display, spelling skills are related to reading skills, which involve the reverse process. A review of research revealed two studies dealing directly with spelling at the college level. Marksheffel (1959) measured 444 college freshmen on three variables to learn that intelligence is related to spelling and auditory discrimination skills but that auditory discrimination is not a variable that affects spelling. However, Magee (1969) employed four ability measures on fifty-six college students, finding that phonics knowledge (as measured on the California Phonics Survey) is related to reading comprehension, knowledge of word meaning, and also spelling. Inasmuch as these two studies (1) utilized different and somewhat dissimilar measuring instruments, (2) measured somewhat different abilities, and (3) arrived at results that, when compared, are at best inconclusive if not insupportive, they contribute only tangentially to the study at hand.

Experimental Research in College-Level Phonics

During the last forty years, however, there have been ten dissertations and articles reporting studies that deal directly with phonic analysis at the college/adult level.

In her early and intensive study of seventy-two college readers scoring at the twentieth percentile or below on the Iowa Silent Reading Test, Rogers (1937) employed phonics training on an experimental group and otherwise studied a control group to arrive at findings that have found considerable and consistent corroboration in the research that followed. Among her findings that focus on the topic of the present study is that a student's "mispronunciation of a word and lack of comprehension of its meaning go together 78% of the time." (p. 18) She also found that phonics training significantly affected the experimental group by improving subject's scores on pronunciation, oral reading, and vocabulary measuring instruments. Rogers concluded that the deficient readers she studied suffered reading disabilities at least partially because of their inability to aurally decode writing, stating that "poor readers in college have remained at an elementary stage of reading in which many more words are more easily recognized when presented auditorily than when presented visually." (p. 1)

Three years later and while studying various age groups including a college freshmen sub-group, Tiffin and McKinnis (1940) used the Stanford Reading Test to measure outcomes of their experiment in phonic analysis and then offered the advice that "a program of reading instruc-

tion which does not, by direct or indirect instruction, yield a mastery of the principles of phonics is not accomplishing its full purpose."

(p. 192)

The findings of Clarke (1953) showed that, for a group of 100 freshmen, phonetic ability correlates significantly with gross scores on the American Council on Education Psychological Examination and found indications of a positive relationship between phonetic competence and silent reading comprehension.

Part of Cottrell's (1958) study involved 670 community college students whose scores on a phonics test were found to correlate significantly with the spelling and also vocabulary sections of the Cooperative English (C2) Test and the linguistic section of the American Council on Education Psychological Examination. She concluded that "ability in phonetic analysis is necessary but not sufficient for good reading in the English language." (p. 32)

In an extensive study, Brown and Cottrell (1963) administered the California Phonics Survey to community college freshmen (N=670) to learn that seventy-one percent of them exhibited slight to severe degrees of phonic disablement. They also compared scores (N=600) on the California Phonics Survey with scores on the Cooperative English (C2) Reading Test to find that phonic ability correlates highly with vocabulary and reading comprehension skills. Finally, they studied 183 freshmen and learned that their phonic competence correlated (.01 level) with the grade-point averages of students compiled two years later.

Henney (1964) provided twenty hours of phonic instruction to

functionally illiterate adults who increased their performance significantly in oral and silent reading and as measured on two reading scales.

Using four separate and discrete measuring instruments and providing intensive instruction in phonics for undergraduate students (N=56), Magee (1969) concluded that phonic ability is related to better silent reading, spelling, and knowledge of word meaning and that intensive instruction in phonics at the college level can produce gain in phonic knowledge.

Comparing the word attack strategies of children (N=32) and adults (N=32), Williams (1970) found indications that both groups used phonic analysis in their processing.

Lowenthal (1971) studied the vocabulary knowledge of a population of proficient adult readers and learned that, if a word is part of their familiar acquired vocabulary, a visual display of the word elicits a phonological response, thus corroborating one of Rogers' (1937, p. 18) findings.

Finally, Littrell (1976) compared a control group (N=15) and an experimental group (N=43) to learn that students completing a typical community college developmental reading course enjoyed significant gains (.05 level) in phonic knowledge even though no specific phonic instruction was provided them.

These ten studies, most of which execute experimental research designs, then appear to support the position that phonic competency among college and adult populations is (1) related and perhaps even prerequisite to reading, spelling, word recognition skills, (2) predictive of grade-point average and therefore success in college courses,

and is (3) a skill that can be acquired through specific instruction.

Phonics and College Reading Programs

As indicated in the previous chapter of this study, the typical college developmental reading course does not include phonics training as one of the strategies employed in the instructional process. However, a review of the literature does reveal seven articles and reports indicating that certain community colleges do provide for some measure of phonic instruction, and these atypical instances are worthy of mention.

Brown (1970) and Oakman (1970) both describe courses that concentrate on phonics instruction and drill, these courses being specifically addressed to and designed for students who evidence phonic disablement. Three program descriptions (Nelson 1962; Resmondo 1973; Sowande 1977) indicate that instruction in phonics is available as a service to students and as an adjunct to their programs. Finally, two reports (Bloesser 1968; Young 1967) make mention of instruction in phonic analysis in passing but do not make clear how much is provided or how it is facilitated. Each of these reports is expository in nature, and none includes any discussion of objective evaluation or measures that are indicative of improvement of students' phonic abilities.

Summary

With the exception of the reported research concerning auditing and spelling in relationship to phonics and word recognition skills, the review of research concerning phonics as it pertains to college-level

population leads to the following points of agreement:

- that the relationship between auditory and visual skills in the act of reading is a fundamental skill,
- that both analytical and synthetic methods of teaching word recognition skills are viable and effective and that one should not be employed to the exclusion of the other,
- that developmentally and typically aural/oral skills precede reading skills in a Piagetian hierarchy,
- that many community college students, although adequate or highly proficient in aural/oral skills, are deficient in reading and word recognition skills,
- that phonic competency is related to word recognition skills and success in college courses,
- that phonic skills can be acquired and applied by college students,
- that phonics instruction is not typically offered as a constituent of or adjunct to the typical community college reading program.

CHAPTER 3

DESIGN OF THE STUDY

Summary of the Purpose

It is apparent that many community college students are deficient in reading skills and that this disability can often be attributed to students' inability to aurally decode the language they are attacking. Also, there is sufficient indication that, while the typical community college does not give special attention to students with phonic disabilities, many students enrolled in such programs or courses are phonically disabled. Therefore, this study was executed to learn whether this typical developmental treatment effectively diminishes college students' phonic disabilities.

The Sample

The samples were selected from the student constituency of El Camino College, California, a large (29,000) single-campus, comprehensive, urban community college. The total population being studied consisted of fourteen developmental reading and developmental writing classes taught during the sixteen-week spring semester and also the six-week summer session of the 1977 school year. These classes were conducted by nine different instructors. Eleven of the classes were conducted during day hours, and three were held during night hours, reflecting approximately the day-night ratio in which these classes are

typically offered. Nine of the classes were conducted during spring 1977 semester, and five were conducted during the 1977 summer session, a ratio which is not closely reflective of the typical ratio of these offerings. However, this accommodation and selection was elected to secure a sufficient number of summer session (short-term) measures to provide adequate data for meaningful statistical comparison. It also should be noted that all classes were conducted by full-time tenured faculty whose teaching experience in such classes ranged from six to fifteen years.

Students in the experimental group were those taking six English 2R (developmental reading) classes (total N=212). Course selection being facilitated by a computer-managed course selection process, students are assigned to or counseled into these classes on the basis of their total percentile scores and their percentile reading sub-test scores as measured on the New Purdue Test in English. (A detailed description and evaluation of this computer-managed course assignment process is reported in Elmgren, Kerstiens and McCoard (1967) and Kerstiens (1970).) Additionally, these students were taught by instructors who confirmed that their instructional strategies were such that their courses conformed to the definition of a typical college developmental reading course. Therefore, the experimental group can be assumed to be reasonably generalizable since both the students involved and the treatment employed are typical of those that flourish at other community colleges. Thus, this condition contributes to the study's external validity.

The control group consisted of eight English A (developmental

writing) classes (total N=257). Students were assigned to these classes based upon their total percentile scores as measured on the New Purdue Test in English; these students scoring between the seventeenth (17th) and fifty-seventh (57th) percentiles, local norms (Elmgren, Kerstiens, and McCoard (1967), and Kerstiens (1970)). These students were taught by instructors who confirmed that their instructional strategies were such that their courses conformed to the definition of a typical college developmental writing course.

Further, since students in the control group were taking the course as typical expectation during their early exposure to college (seventy-five percent of students are exposed to the course), certain assumptions can be made about the group's serving as a reliable and valid control. First, these students were participating in the college experience and were maturing or undergoing "academic aging" at the same time intervals as the experimental group. Second, control group students and experimental group students were those whose total percentile scores ranged from the seventeenth to the fifty-seventh percentile. Therefore, the control group can be considered as comparable to the experimental group since it is representative of developmentally identified students engaging in the total college experience while not engaging in the experience derived in a developmental reading course.

The Design

The thrust of the present study can be considered as both evaluative and experimental. Inasmuch as both the control and experimental groups that participated consisted of intact classes, and because

neither students nor treatments were manipulated in order to gather data or arrive at findings, the study is evaluative in nature. Therefore, the basic design of the study was a quasi-experimental research design of the "ex post facto" mode described by Campbell and Stanley (1963). The intent of this model is to equate experimental and control groups after the fact by matching them on characteristics found before the treatment and then comparing these groups on variables that may obtain after specific treatment and non-treatment. But to the extent that certain instructional and ability variables are measured and compared to arrive at new, corroborative, or dissenting findings with respect to students' phonic disabilities, the study can also be considered experimental in nature. However, the fact that, with the exception of the pre-post testing process, no "new" manipulative or interventional measures were implemented may contribute to the internal validity of the study by minimizing experiment errors associated with student-instructor over enthusiasm or other Hawthorne effect biases. Also, it should be noted that students were informed and assured that test scores would not affect their grades and that individual scores would not be divulged to their instructors.

Therefore, no single classical experimental design could be selected to perform this study. Rather, four quasi-experimental designs were sequenced and integrated in four stages in order to effect the purpose of the study.

Stage One

The One-Group Pre-Post Design was used for the first stage of the

study. During the first week of the semester, and summer session, all control and experimental group students were administered Form 1, California Phonics Survey, hereinafter referred to as CPS. During the last week of the semester and summer session, all control and experimental group students were administered Form 2 of the CPS. Data derived from these measurements were treated separately for each group using the t-test statistical technique, to learn whether either, neither, or both groups enjoyed significant (.05 level) phonic growth during the time interval.

Stage Two

To learn whether the experimental group's mean experience significantly exceeded the control group's mean experience, a Two-Group Pre-Post Design was used inasmuch as group experiences were compared. The Walker-Lev t-test of two differences statistical technique (Walker and Lev 1953, p. 153) was employed for this purpose especially because this technique takes into account any differences in pre-test mean scores experienced by the groups compared. Criteria for significance was set at the .05 level of acceptance.

Stage Three

To implement the third stage of this study, a Randomized Block Design was employed. This stage was implemented in order to learn, (1) the effect the experimental treatment (developmental reading) would have on different types or classifications of students, (2) the effect a short-term course would have as compared with a full-semester course, and (3) whether a student's degree of phonic disablement is related to

or predictive of his success (grade) in a developmental reading course.

First, subjects in the experimental group were divided into categories to learn whether sex is a factor that affects phonic ability and the degree to which sex may affect increase in phonic abilities. Mean pre-post test scores for male and female students were compared using the Walker-Lev t-test of two differences technique and the .05 level of confidence was elected as the criterion of acceptance.

Second, previous research involving gain comparisons between short-term and longer-term developmental reading courses gives rise to the question whether such instructional time variables will similarly affect increase in the phonic abilities of students. For instance, Taschow (1968) compared gains of students completing two otherwise identical fifty-four hour courses designed to increase vocabulary, comprehension, rate, and study skills. One course met five days a week for ten weeks; the other course met two days a week for twenty weeks. Pre- and post-testing on the Nelson Denny Reading Test, Forms A and B, revealed that the short-term course was as effective as the long-term course. Again, Ilika and Longnion (1977) compared two adult developmental reading groups, each receiving thirty-three hours of instruction but one group completing its instruction during a five and a half week period and the other during an eleven week period. Pre- and post-testing on the Nelson Denny Reading Test and the McGraw-Hill Basic Skill Systems Test indicated no significant difference between the gains in reading rate and comprehension of the two groups. Therefore, in the present study, students completing short-term developmental reading classes were compared with those taking semester-length classes to learn whether

these instructional time variables affect the phonic abilities of students similarly or dissimilarly. The Walker-Lev t-test of two differences statistical technique was employed in this sub-study, and the .05 level of confidence was selected as the criterion of acceptance.

Third, to learn whether there are differences in day developmental reading instruction and night instruction, data concerning students were divided accordingly and statistically compared in the same manner and according to the same criteria as followed in the short-term vs. semester-length sub-study.

Fourth, previous research, indicating that phonic ability is related to and predictive of success in college courses (see Brown and Cottrell 1963), gives rise to the question whether a student's degree of phonic disablement is related to his success in a developmental reading course. Therefore students were divided according to their pre-test scores into three categories: somewhat disabled, seriously disabled, and grossly disabled (Brown and Cottrell, 1963). Then students so identified and classified were compared with their earned grades in the developmental reading classes, using the chi-square statistical technique and using the .05 level as the criterion of acceptance.

Stage Four

To learn whether developmental reading students' dropout experience is related to their experience on the phonics pre-test, a simple Pre-Test Two-Group Design was utilized. Students who had dropped from the developmental reading course (N=71) were assigned to the Dropout Group. Their pre-test mean scores were compared with the mean scores

of those students completing the developmental reading course (experimental group (N=106)), using the t-test statistical technique and electing the .05 level of significance as the criterion of acceptance.

Hypotheses

Three major and five minor hypotheses were tested.

Major Hypotheses

- (1) There is no significant difference between the mean performances of the developmental reading class students (experimental group) on the pre- and post-tests of phonic ability.
- (2) There is no significant difference between the mean performances of developmental writing class students (control group) on the pre- and post-tests of phonic ability.
- (3) There are no significant differences between the mean performances of students with phonic disabilities enrolled in reading classes (experimental group) and those enrolled in a writing class (control group) on a post-test of phonic ability when the two groups are statistically equated with respect to a phonics pre-test.

Minor Hypotheses

- (4) There is no significant difference between the mean performances of male and female developmental reading class students on the pre- and post-tests of phonic ability.
- (5) There is no significant difference between the mean performances of students completing a short-term developmental

reading class and a full-semester developmental reading class on the pre- and post-tests of phonic ability.

- (6) There is no significant difference between the mean performances of students taking a night and day developmental reading course on the pre- and post-test of phonic ability.
- (7) There is no significant difference between the grades earned by students completing a developmental reading course and the degree of phonic disablement indicated by their pre-test scores on a test of phonic ability.
- (8) There is no significant difference between the mean performances of the Dropout Group and the experimental group on the pre-test of phonic ability.

Instrument

The California Phonics Survey (1963), Forms 1 and 2, was used as the primary measuring instrument in this study. This test contains six sections, all but the last of which is administered orally as students respond to written alternatives on the response form. A comprehensive test, it measures phonic ability on seventy-five test items and in eight categories:

Section I Vowels

- A. Long-short vowel confusion
- B. Other vowel confusion

Section II Consonants

- A. Confusion with Blends and Diagraphs
- B. Consonant-Vowel Reversals

Section III Configuration

Section IV Endings (Suffixes)

Section V Negatives and Opposites

Section VI Rigidity

This test was elected as the instrument to measure phonic ability for a number of experimentally efficient as well as pragmatic reasons. First of all, the test was field-tested and normed on college-adult populations as well as populations in the lower, middle grades, and high school. Consequently it is more valid for older populations than most other tests of phonic ability which are geared to and normed on elementary populations. Second, most of the related research relevant to phonics at the college level involves CPS measurement; therefore, the relationship between this study and others is facilitated. Third, CPS is an efficient testing instrument inasmuch as it is designed for group as well as individual testing, while many of the other phonic surveys are individually administered. Fourth, the format of the response forms is such that students' responses can be computer scored. Finally, the test is untimed and therefore does not occasion test errors or incomplete responses that attend instruments in which speed of perception is a factor.

CHAPTER 4

ANALYSIS OF THE DATA

Data Collection Procedures

The total population being studied consisted of students enrolled in English 2R (developmental reading) and English A (developmental writing) courses during the sixteen-week spring semester and the six-week summer session of the 1977 school year. Fourteen classes were studied: six English 2R classes and eight English A classes.

The testing and dropout experience of these groups together with the data relating to their experience when purposeful sorting was imposed, appears in Table 1.

As the data in Table 1 show, 212 English 2R and 257 English A students were pre-tested on Form 1, CPS. This measurement took place during the first week and the second meeting of every class. The second meeting was elected as the pre-testing session to allow for student schedule changes and therefore to provide a more stable testing population.

During the course of each semester and summer session, seventy-one students withdrew from English 2R classes, twenty-six students were eliminated from the study when it was learned that they were coenrolled in an English A class, and nine students were eliminated because their scores on the CP indicated that they exhibited no indication of phonic

TABLE 1

Testing, Dropout, and Sorting Experience
of Measured Population (N=459)

Class	Initially Enrolled and Pre-Tested		Dropout	Coenrolled and Eliminated From Study		Not Phonically Disabled and Eliminated From Study		Completed Course and Post-Tested	
	<u>N</u>	<u>%</u>	<u>N</u> <u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
English 2R	212	(100.0)	71 (33.5)	26 (12.3)		9 (4.2)		106 (50.0)	
English A	257	(100.0)	103 (40.0)	26 (10.1)		15 (5.8)		113 (44.0)	

disablement. Thus, 106 of these students completed the course and were post-tested on Form 2, CPS, during the last week of the semester or summer session. This group, after experiencing attrition and also the sorting process designed to optimize the study's internal validity, comprised the experimental group (N=106).

Data collecting procedures for students enrolled in English A classes were executed in like manner. The number initially enrolled and being pre-tested was 257; 103 students withdrew; twenty-six were coenrolled and therefore eliminated; fifteen students were measured as phonically adequate and eliminated; and 113 students completed the course and were post-tested. This group, then, comprised the control group (N=113).

All student CPS answer forms were submitted for computer scoring. Scores were assigned and matched to students' identification numbers on collating sheets which also appropriately reflected the students' (1) class category (English 2R or English A); (2) term of course (short term or full semester); (3) time of course (day or night); (4) degree of phonic disablement (some, serious, or gross); (5) sex (male or female); and (6) grade received in course (A, B, C, or D). (No "F" grades were assigned). Then the pre-test scores for students originally enrolled in English 2R classes but who had dropped the course (Dropout Group) were gathered and matched with student identification numbers. Next the data were keypunched, verified, and submitted for computer analysis. Data derived from these analyses provided the numbers, percentages, means, standard deviations and cell distributions

that appear in appropriate tables that are listed in the findings.

Findings

The data and the tables that appear in this section are organized so that they correspond to the sequential order of the eight hypotheses incorporated in the study's design.

Hypothesis 1: There is no significant difference between the mean performances of the developmental reading class students (Experimental Group) on the pre- and post-tests of phonic ability.

In order to accept or reject this hypothesis, the t-test of significance statistical technique was implemented and as evidenced in Table 2.

TABLE 2
Comparison of Pre- and Post-Test Scores
For Experimental Group

	N	Mean	SD
Pre-Test	106	54.83	10.53
Post-Test	106	57.96	9.80

$t=2.21$ Significant at the .05 level

These data indicate that the Experimental Group experienced a mean 3.13 point gain during the term of the developmental reading course

and that this difference is statistically significant at the .05 level of confidence. Therefore, Hypothesis 1 was rejected.

Hypothesis 2: There is no significant difference between the mean performances of developmental writing class students (Control Group) on the pre- and post-tests of phonic ability.

The t-test statistical technique was also employed to test this hypothesis and as shown in Table 3.

TABLE 3

Comparison of Pre- and Post-Test Scores
For Control Group

	N	Mean	SD
Pre-Test	113	54.06	10.38
Post-Test	113	56.92	9.18

$t=2.18$ Significant at the .05 level

These data indicate that the Control Group experienced a mean 2.86 point gain during the term of the developmental writing course and that this difference is also statistically significant at the .05 level of confidence. Therefore, Hypothesis 2 was rejected.

Hypothesis 3: There are no significant differences between the mean performances of students with phonic disabilities

enrolled in reading classes (Experimental Group) and those enrolled in a writing class (Control Group) on a post-test of phonic ability when the two groups are statistically equated with respect to a pre-test.

To test this hypothesis, the Walker-Lev t-test of two differences statistical technique was implemented and as displayed in Table 4.

TABLE 4

Pre- and Post-Test Score Comparison
Of Experimental and Control Groups

	N	Mean	SD
Pre-Test, Exp. Gp.	106	54.83	10.53
Post-Test, Exp. Gp.	106	57.96	9.80
Pre-Test, Cont. Gp.	113	54.06	10.38
Post-Test, Cont. Gp.	113	56.92	9.18

$t=0.025$ Not Significant

The data reveal a mean pre-test score difference of .77 of a point between the experience of the Experimental and Control groups. When the groups' mean point gains are compared, there is only .27 of a point difference in favor of the Control Group. And application of the formula that takes into account these differences together with somewhat aberrant variances in standard deviations yields a t value indicating non-significance. Therefore, Hypothesis 3 was accepted.

Consequently, this comparison reveals that the .27 CPS mean point gain enjoyed by the Experimental Group over that of the Control Group is essentially negligible and statistically not significant

Hypothesis 4: There is no significant difference between the mean performances of male and female developmental reading class students on the pre- and post-tests of phonic ability.

The data in Table 5 were subjected to the Walker-Lev t-test of two differences statistical technique.

TABLE 5

Pre- and Post-Test Comparison of Male
And Female Scores, Experimental Group

	N	Mean	SD
Pre-Test, Males	50	52.96	9.95
Post-Test, Males	50	55.10	8.88
Pre-Test, Females	56	56.42	10.56
Post-Test, Females	56	60.57	9.78

$t = .84$ Not Significant

The data show that the mean CPS point gain for males was 2.14 and for females 4.15, indicating a difference of a 2.01 mean point gain in favor of the female students. However, the statistical comparison yielded a t value of .84, which is not statistically significant, and Hypothesis 4 was accepted.

Hypothesis 5: There is no significant difference between the mean performances of students completing a short-term developmental reading class and a full-semester developmental reading class on the pre- and post-tests of phonic ability.

To test this hypothesis, the data in Table 6 were subjected to the Walker-Lev t-test of two differences formula.

TABLE 6

Pre- and Post-Test Score Comparison of Short-Term and Full-Semester Students, Experimental Group

	N	Mean	SD
Pre-Test, Short-Term	32	54.19	9.00
Post-Test, Short-Term	32	56.55	9.59
Pre-Test, Full-Semester	74	54.97	10.95
Post-Test, Full Semester	74	58.50	9.75

$t=1.22$ Not Significant

The data revealed that students completing a short-term (six-week summer session) developmental reading class experience a mean CPS point gain of 2.36. Students taking the full-semester course gain 3.53 points, such difference indicating a 1.17 mean point gain in favor of the students attending an entire semester. This difference did not prove to be statistically significant, however, and Hypothesis 5 was accepted.

Hypothesis 6: There is no significant difference between the mean performances of students completing a night and day developmental reading course on the pre- and post-test of phonic ability.

The t-test difference formula was again employed to test this hypothesis and as displayed in Table 7.

TABLE 7

Pre- Post-Test, Day Student - Night Student
Score Comparison, Experimental Group

	N	Mean	SD
~Pre-Test, Day	78	54.91	10.68
Post-Test, Day	78	58.15	9.89
Pre-Test, Night	28	51.86	10.16
Post-Test, Night	28	55.43	7.98

$t=.34$ Not Significant

This comparison reveals that the mean CPS gain of the day students' was 3.24 points while students taking night classes showed a mean gain of 3.57 points, indicating a net gain of .33 points in favor of night students, but not enough to yield statistically significant difference. Therefore, Hypothesis 6 was accepted.

Hypothesis 7: There is no significant difference between the grades earned by students completing a developmental reading

course and the degree of phonic disablement indicated by their pre-test scores on a test of phonic ability.

Data relating to this sub-study are found in Table 8.

TABLE 8

Comparison of Students' Degree of Phonic Disablement and Grades Earned in a Developmental Reading Class (N=101)

	A	B	C
Some Disablement	17	13	14
Serious Disablement	9	10	18
Gross Disablement	3	7	10

Chi-Square=5.015 Not Significant,

It can be noticed that Table 8 displays the grade distribution for students who, at the onset of the course, evidenced different degrees of phonic disablement. Students classified as having "Some Disablement" scored between 58 and 69 on the CPS pre-test; those classified as "Serious" scored between 46 and 57; and those classified as "Gross" scored at 45 or below. (These classifications are identified and verified in Brown and Cottrell (1963, p. 17).) Also, it is noted that five students who earned "D" grades were precluded from this distribution. Such was necessary since including these grades occasioned vacant cells and therefore was not compatible with the chi-square statistical model employed in this sub-study. Although it can be noticed that those students evidencing the least degree of phonic

disablement were those that earned the higher proportion of "A" and "B" grades, nevertheless, application of the chi-square formula yielded a chi-square value of 5.02, which is not significant. Therefore Hypothesis 7 was accepted, because the degree of students' impairment does not correlate with their grades in the reading development class at the level of acceptance assigned to Hypothesis 7.

Hypothesis 8: There is no significant difference between the mean performances of the Dropout Group and the Experimental Group on the pre-test of phonic ability.

In Table 9 the pre-test experience of those students completing the developmental reading class is compared with the pre-test experience of students who dropped the class. The t-test of significance statistical technique was applied to these data.

TABLE 9

Comparison of Pre-Test Mean Scores
Of Experimental and Dropout Groups

	N	Mean	SD
Experimental Group	106	54.83	10.53
Dropout Group	71	49.40	11.95

$t=3.10$ Significant at the .01 level

As revealed in Table 9, the pre-test mean score of the Experimental Group ($N=106$) exceeds that of the Dropout Group ($N=71$) by 5.43 points.

This gain constitutes a greater point spread between comparable variables than was experienced by other groups compared in all other sub-studies. This difference is significant at the .01 level of confidence, a higher level of significance than was assigned as the criterion for acceptance. Therefore, Hypothesis 8 was rejected.

Summary of Findings

Since the objective findings yielded by this study are directly related to the eight null hypotheses tested, a summary of the essential findings are listed in the following order.

Major Hypotheses

Hypothesis 1: rejected

Hypothesis 2: rejected

Hypothesis 3: accepted

Minor Hypotheses

Hypothesis 4: accepted

Hypothesis 5: accepted

Hypothesis 6: accepted

Hypothesis 7: accepted

Hypothesis 8: rejected

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

Review of Background, Significance, and Design of the Study

The review of the professional literature discussed in the first two chapters of this study revealed practices, attitudes, and conditions concerning various aspects of word recognition and phonic skills. Also, this review focused on oral/aural aspects of college/adult students' reading disabilities as well as the treatment a student receives in a typical community college developmental reading course or program.

First of all, it was noticed that the objectives as well as the methodologies applied in most developmental reading programs have not changed essentially during the last forty-six years. Second, it was established that the typical college-level developmental reading program is designed with an emphasis on the development of comprehension, vocabulary, study skills, and reading rate and continues to ignore phonics as one of the instructional strategies employed to treat disabled readers. Additionally, there is every indication that the training and competency of reading instructors is not sufficient for them to provide instruction in phonics, even if such treatment were deemed desirable. Again, it was shown that a significant proportion of community college students can be identified as phonically disabled and that this

impairment is so fundamental as to adversely affect their (1) efforts to improve their reading skills and (2) success in the college curriculum. Finally, it was established that, while the typical community college does not give special attention to students with phonic disabilities, many students enrolled in developmental reading programs or courses can be identified as phonically disabled.

Therefore, this study was designed and executed with the primary purpose of learning whether this typical developmental treatment significantly diminishes college students' phonic disabilities. Its secondary and related objectives were to learn whether (1) sex, (2) duration of course, (3) time of day, or (4) students' degree of phonic disablement, were variables related to any decrease in their phonic disabilities or their success in a developmental reading course as measured by grade achieved. A final and related objective was to learn whether dropout in the developmental reading course was related to or contingent upon the degree of students' phonic disablement.

To provide focus for the study design, eight null hypotheses were formulated and then tested, with results as indicated in Chapter 4 of this study. Conclusions based upon these results follow.

Conclusions

Hypothesis 1: There is no significant difference between the mean performances of the developmental reading class students (Experimental Group) on the pre- and post-tests of phonic ability.

Hypothesis 1 was rejected. The 106 students who were identified as

phonically disabled on the CPS and who had completed a course in developmental reading experienced a mean point gain of 3.13, which is significant at the .05 level. Therefore, even though these students had not received specific instruction in aural decoding skills, they nevertheless experienced statistically measurable improvement in their phonic analysis skills. Thus, it can be concluded that to the extent that intervening variables did not obtrude, students completing a typical community college developmental reading course do receive treatment that diminishes their phonic disabilities.

However, this conclusion should be qualified. The professional literature abounds with studies showing significant one-group pre-post-test gains of students measured on various reading scales. Inasmuch as such a design does not account for academic aging or any residual gain factor occasioned by the pre-test experience, such studies and results need to be interpreted with consideration to these limitations. Therefore, it should be noted that the sub-study relating to Hypothesis-1 shares these limitations and should be interpreted with due caution.

Hypothesis 2: There is no significant difference between the mean performances of developmental writing class students (Control Group) on the pre- and post-tests of phonic ability.

Hypothesis 2 was rejected. The 113 students who were identified as phonically disabled on the CPS and who had completed a course in developmental writing experienced a mean point gain of 2.86, which is also significant at the .05 level. Students in this Control Group, of course,

also did not receive any instruction or drill in phonics during their exposure to the developmental writing course. Therefore, to the extent that intervening variables did not obtrude, students completing a developmental writing course received instruction that reduced their phonic disabilities.

That a control group experiences significant mean gain is not very common in the reported literature. Perhaps this condition is partly attributable to the fact that reporting such gains sometimes mitigates against an intervention that a writer is favoring or championing; therefore, such findings may remain unreported. At any rate, this one-group sub-study suffers from--and enjoys--the same limitations as abide in other one-group pre-post-test designs.

Hypothesis 3: There are no significant differences between the mean performances of students with phonic disabilities enrolled in reading classes (Experimental Group) and those enrolled in a writing class (Control Group) on a post-test of phonic ability when the two groups are statistically equated with respect to a pre-test.

Hypothesis 3 was accepted. The difference in net mean point gain of the Experimental Group beyond that of the Control Group was .27 of a point, which is not statistically significant. Therefore, even though both groups experienced significant gains as measured on Forms 1 and 2 of CPS, the slightly superior gain enjoyed by the Experimental Group can be considered essentially negligible. Further, it can be concluded that phonically disabled students completing either course can expect

nearly the same degree of remediation of phonic disablement.

It should be noted that these findings and conclusions are in contrast to those of Littrell's (1976) study. Comparing similar groups, Littrell found that the mean CPS gain of his experimental group (N=43) exceeded that of the control group (N=15) by 2.05 points and that this difference was statistically significant at the .05 level of confidence. However, it should be noted that mean pre-test CPS scores for students in Littrell's study were 62.98 for the experimental group and 58.47 for the control group. Littrell's mean scores are markedly different from those encountered in this study: 54.83 for the Experimental Group and 54.06 for the Control Group (see Table 4). Such disparity indicates that the groups compared by Littrell are appreciably more adept at phonic analysis than the populations measured in this study and strongly suggests that the populations measured in the two studies are not congruent and therefore results may not be equitable or even reasonably comparable.

Hypothesis 4: There is no significant difference between the mean performances of male and female developmental reading class students on the pre- and post-tests of phonic ability.

Hypothesis 4 was accepted. Acceptance of this hypothesis leads to the conclusion that sex is not a factor that influences a college student's repair of phonic disabilities as the student receives treatment in a typical developmental reading course. It also can be noticed, (see Table 5) that female students' mean pre-test and post-test scores

are higher than those of males, which constitutes a corroboration of other research (Cottrell 1958) which reported a similar variation and indicated female superiority in the area of oral decoding skills as measured by the CPS.

Hypothesis 5: There is no significant difference between the mean performances of students completing a short-term developmental reading class and a full-semester developmental reading class on the pre- and post-tests of phonic ability.

Hypothesis 5 was accepted. Acceptance of this hypothesis leads to the conclusion that, whether the developmental reading class is of short duration (six weeks) or that of the longer term (seventeen weeks), the effect on the phonic abilities of students will be essentially the same. Using the Nelson Denny Reading Test as a measuring instrument, Taschow (1968) arrived at findings that parallel the findings in this sub-study. He learned that the short-term course was as effective as the long-term course in producing measured gains in reading rate, vocabulary, and reading comprehension. Again, Ilika and Longnion (1977) compared short-term and longer-term developmental reading groups. Pre- and post-testing on the Nelson Denny Reading Test and the McGraw-Hill Basic Skill Systems Test, they found no significant difference between the gains in reading rate and comprehension between the two groups. Therefore, both the Taschow and the Ilika and Longnion studies give positive if tangential support to this sub-study, which utilized the CPS as the measuring instrument. Thus, three different studies employing three different reading measurement instruments strongly suggest that

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short-term reading courses are as effective as longer-term or regular semester courses.

Hypothesis 6: There is no significant difference between the mean performances of students completing a night and day developmental reading course on the pre- and post-test of phonic ability.

Hypothesis 6 was accepted. Although the pre-test mean score of students taking day classes was higher than that of night class students (54.91 vs. 51.86; $D=3.05$), their mean CPS gain experience was not statistically significant. Such would strongly suggest that day students have stronger entry-level phonic skills; however, night students are able to improve their phonic skills with essentially the same degree of success as day students.

Interestingly the review of the literature did not yield any comparable study, even though there seems to be general agreement among practitioners that the attitudes, goals, and life styles of day and night students are dissimilar. Apparently, however, such real or fancied condition does not significantly affect students' ability to perform or achieve in a developmental reading class.

Hypothesis 7: There is no significant difference between the grades earned by students completing a developmental reading course and the degree of phonic disablement indicated by their pre-test scores on a test of phonic ability.

Hypothesis 7 was accepted. This sub-study (see Table 8) was

designed to learn whether students' degree of phonic disablement (Some, Serious, or Gross) was related to the grades they earned in a developmental reading class. Although the Table reveals that the greater proportion of higher grades are earned by those students evidencing the least degree of phonic disablement, this ratio is not statistically significant. Therefore, the sub-study strongly supports the position that there is no relationship between a students' entry level CPS score and his grade in a developmental reading course.

This conclusion is somewhat at variance with a sub-study performed by Brown and Cottrell (1963). They compared students' college freshman entry-level CPS scores (N=186) with their grade-point averages that had accrued two years later. Using a chi-square statistical model but with cut-off scores higher than those assigned in the present study, they found that students scoring at or below sixty-seven points on the CPS earned GPA's that are significantly (.01 level) lower than students scoring above sixty-seven points. Obviously the Brown and Cottrell study involved a population possessing higher degrees of phonic ability than students measured in the present study. Further, they compared students' phonic ability with GPA's, not a grade in a single course. Therefore the variables are sufficiently dissimilar so as to obtain different results. Nevertheless, these two studies' lack of congruence is interesting if unexplainable.

Hypothesis 8: There is no significant difference between the mean performances of the Dropout Group and the Experimental Group on the pre-test of phonic ability.

Hypothesis 8 was rejected. A comparison of the mean entry-level CPS score of students (N=106) completing the developmental reading course was compared with the mean score experienced by the students (N=71) who had dropped the class as is seen in Table 9. This comparison indicates that the differences in the mean scores of the two groups was significant at the .01 level of confidence. Therefore, students' CPS scores are highly predictive of their dropout potential in a developmental reading course. And since the seventy-one students who had dropped their developmental reading courses constituted 33.5 per cent of the population initially enrolled, it is apparent that the degree of a student's phonic disablement posits decided implications involving retention, preparation, and curriculum.

Implications

The findings yielded by this study have implications for those responsible for the content as well as the choice of clientele for developmental reading courses or programs on community college campuses.

First of all, the study quite clearly supports the position that the typical community college reading program does not, in and of itself, effectively reduce the phonic disablement of students who complete the course. In fact, the findings strongly suggest that completing a course in developmental writing will repair a students' phonic disablement to nearly the same degree as a developmental reading course. Of course, it is impossible to rule out the notion that other-course contamination presented an intervening variable in this study, for most students in both the Experimental and Control groups were taking other courses during

the time they were receiving instruction in reading and writing. Pursuing this notion further, it is then possible that the total curricular/academic environment or academic aging will reduce students' phonic disabilities as effectively as a course designed to improve reading rate, vocabulary, comprehension, and study skills. However, if reducing students' phonic disabilities is considered as an essential objective, then it would appear that prescribing a developmental reading class in order to reduce this disability is not wise or prudent.

While it must be admitted that a developmental reading course can produce statistically significant gains for those students (66.5%) who manage to complete it, is their mean gain (3.13 points) on the CPS very meaningful in terms of overcoming difficulties in phonic analysis? Other research together with this study's findings provides an answer to this question. According to Brown and Cottrell (1963), students scoring between 46 and 57 on the CPS are classified as having "serious" phonic disabilities; those scoring between 58 and 69 are classified as having "some" disablement. Again, the mean CPS pre-test score for students in the Experimental Group was 54.83, and their mean post-test score was 57.96. This means that the average student upon enrolling in the developmental reading class exhibited "serious" phonic disablement; and upon completing the class, the average student did not escape this classification, although he came within .04 of a point of doing so. Such gain, then, considered from the perspective of a practical achievement and improvement, cannot be considered as a very meaningful event--or cause for celebration.

Next, this study supports the position that phonic analysis is a

fundamental and prerequisite skill that is related to his overall improvement in reading. The fact that students who dropped the developmental reading course (71 students or 33.5%) exhibited significantly lower phonic abilities than students who completed the course (106 students or 50%) implies that phonic adequacy is related to the other aspects of reading emphasized in a typical developmental reading program; namely, vocabulary, reading rate, and comprehension skills. Therefore, it follows that if a student's phonic disabilities are not specifically and/or effectively treated, then the progress he may experience in a developmental reading course may be severely limited--if indeed he survives the course.

There are some minor implications for reading practitioners and researchers that may be worthy of brief mention. For those who are concerned whether (1) sex, (2) duration of course, or (3) instructional time of day are factors or variables affecting the improvement of phonic skills, the results of this study may help diminish such concern. And, although the level of students' phonic skills is highly predictive of dropout, it is apparent that these skills are not predictive of the grades students receive in a developmental reading course.

The underlying implication posed by this study may be simply stated: practitioners who are employing developmental reading courses in an effort to improve the reading skills of seriously or grossly phonically disabled students should view their courses with constructive dissatisfaction. The results of this study strongly suggest that the student with serious difficulties in phonic analysis is likely to drop out of a developmental reading course. Should he remain in the course, he is not likely to effectively improve his aural decoding skills.

Recommendations

The following recommendations are made with consideration to the notion that college-level developmental reading programs or courses that evidence a forty-six year history of methodological intransigence are not likely to change quickly or dramatically. However, if observed need is the forerunner of function (or innovation), certain measures that are applicable to the local and national level are presented in the light of this study's findings.

- (1) A sufficient number of teacher training institutions should develop practical and intensive short-term courses designed to adequately prepare seasoned as well as novice reading instructors to teach phonics to college-level populations.
- (2) Pilot programs should be initiated and studied to learn whether students with phonic disabilities can be effectively treated within the context of established developmental reading courses taught by instructors adequately prepared to affect the aural decoding skills of students.
- (3) Pilot programs should be initiated and studied to learn whether concurrent instruction in phonic analysis offered to phonically disabled students in either (a) individualized, self-instructional or (b) mini-course formats effectively reduces students' phonic disabilities to the extent that they can either successfully engage in a developmental reading course or escape the need for the course.
- (4) Experimental courses for students identified as being seriously or grossly phonically disabled should be initiated to learn

whether (a) these courses are effective and (b) whether such treatment is sufficient to provide these students with fundamental skills that will assure their improvement in higher-level reading skills.

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